



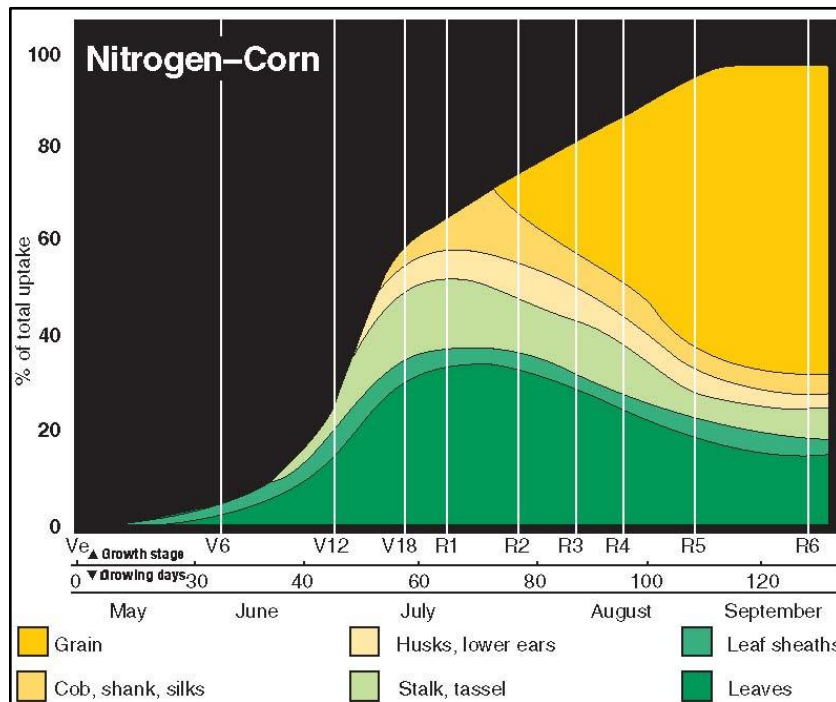
### Nitrogen Management Considerations & Options

“How much nitrogen do I need to grow a 220 bushel crop?” This is a common question for my region and there’s no one-size-fits-all answer. To make a truly informed decision we need to look at a number of factors to develop an appropriate answer; organic matter, field drainage, manure history, cation exchange capacity (CEC), pH, and soil microbial activity. Even with this information there are simple steps that can be taken to reduce the likelihood of nitrogen loss.

Nutrient management is a hot topic in rural America. There are threats of new regulations coming down the pipeline and we as producers need to look at taking a more proactive step towards nutrient management. As an industry we have continued to increase our ability to manage phosphorus, potassium, sulfur, and lime with the use of Variable Rate Technology (VRT). With this technology we know the amount of nutrients we apply and have a good understanding of their stability in the soil. Nitrogen on the other hand can be more difficult to predict. We lose nitrogen to volatilization, denitrification, and leaching. Plus, it’s difficult to measure that loss.

### Understanding Nitrogen Application & Plant Demand

When looking at the nitrogen demand curve for a corn crop we learn that a corn plant needs very little nitrogen prior to V8 and that 75% of the total nitrogen needed is after V10. When a year’s worth of nitrogen is applied in a single application in late fall or early spring there is a high probability of loss before a crop will even need to utilize it.



Credit: Plant Sciences, University of Missouri

## Four Tools for Improving Nitrogen Management

- 1. Nitrogen stabilizers:** These are a great tool to help keep nitrogen stable and reduce unnecessary loss. That paired with split applications is the most effective way to ensure we protect the investment we placed in nitrogen application. There happens to be many different early and late season side dressing tools a producer can use to apply nitrogen.
- 2. Y-Drop Application:** Research that has been done on nitrogen application methods has revealed that nitrogen moves vertically through the soil profile more easily than it does laterally. For years we have been applying nitrogen in the middle of the row hoping that the roots will grow to intercept it. However they have discovered that the closer we apply nitrogen to the root ball the more effective the plant will be at intercepting and utilizing the nutrient. One side dressing tool that addresses this issue and has shown increased yield response is the Y-drop nitrogen application system. This system allows producers to place the nitrogen at the base of the corn plant at any growth stage and is most often used on a high clearance sprayer to allow for a larger application window.
- 3. General Split-Application of N:** While a Y-drop system is not the be-all and end-all solution to nitrogen application, the most important thing to remember, regardless of application systems, is that a split application of nitrogen applied at the right time and rate has a greater economic and environmental advantage over a single application of nitrogen. After learning about your soil type, geography, manure history, and other factors, Legend Seeds Agronomists can help make a recommendation for how much to apply and when to apply it.
- 4. In-Season Soil Sampling:** An in-season nitrate sample that is taken prior to a side dressing for a second application can be used to give producers an idea of how much nitrate is currently in the soil and how much they truly need to apply during the growing season. This is just another tool that can lead to reduced loss of nitrogen.

## Lower Inputs, Improved Stewardship and Higher Yield

If a producer incorporated any of these four nitrogen management tools into their operation they would be able to decrease their total units of nitrogen while increasing their yields by feeding their crop when it needs it the most. Legend Seeds is committed to helping their growers manage their fertility with our Farmacology program and knowledgeable agronomy staff and support. We are able to handle all of your soil sampling needs with grid, composite, and in-season nitrate sampling through our soil and plant testing partners at Frontier Labs. They have a quick turnaround time and professional service that will serve your operation well!

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